Borough of Shrewsbury.

Report of the Medical Officer of Health

FOR THE YEAR ENDING 31st DECEMBER, 1906,

OF THE

Borough of Shrewsbury Urban Sanitary District.

MR. MAYOR AND GENTLEMEN,

I have the honour to lay before you my Report of the Sanitary condition of the Borough during the past year.

I am glad to report that the death rate for the year is the lowest of which I have record, and that the Infantile mortality rate is comparatively favourable.

I am glad to note the formation of a Health Society in the town for visiting the homes of the poor, to assist in saving infant life and in the prevention of Consumption, and I feel sure the Council will assist the work of the Society in every way possible.

I draw attention, in this Report, to the various Sanitary measures which are in my opinion necessary for the further progress of the Borough, in health matters, and to the problems now engaging the attention of the Council and the various Committees.

Of these I place first in importance the question of a new water supply, of unimpeachable quality, laid on to the houses.

Following this, but all of high importance, may be mentioned :—

Isolation accommodation for Infectious Diseases.
New houses for the working classes to take the place of worn-out and unsatisfactory structures.
Public Disinfecting Station.
Public Slaughter-houses.

I take it to be my duty to recommend what in my opinion is necessary for safe-guarding the health of the Borough, and to leave questions of finance to others.

Your obedient Servant,
MAURICE GEPP.

April 23rd, 1907.

BOROUGH OF SHREWSBURY.

	1891.	1901.	1906.
Area in Acres (exclusive of water) ...	3409	3409	3409
Population (census)	26,967	28,395	—
Population (estimated)	—	—	29,288
Inhabited Houses (census)	5600	6065	—
Persons per House	4·81	4·68	—
Rateable Value, April 1st	—	—	£154,556
A Penny Rate produces	—	—	about £500
Death Rate per 1000	19·4	15·6	14·7
Birth Rate per 1000	26·4	26·8	23·3

PHYSICAL FEATURES AND GENERAL CHARACTER OF THE DISTRICT.

The Borough comprises 3,525 acres, forming an area nearly equal in length and breadth, and roughly quadrangular. This area lies in the Valley of the Severn, which is here wide and open, having a gradual fall to the River, and varying in elevation from 150 to 260 feet above sea level. The geological formation is varied, the Permian Red Sandstone occurring in a band across the centre, with the Bunter beds of the New red Sandstone to the North, and the Coal measures on the South. The actual subsoil is however mainly river drift of varying and generally considerable thickness, in places stiff clay, but generally sandy and dry in the upper part, with clay underlying at greater or less depth. The contour offers good natural drainage to the Severn, which owing to its devious course flows over a length of some eight miles, either through, or along the borders of, the district. The actual length of its flow through the district is about three miles.

The climate of Shrewsbury is mild and healthy. Though not bracing and having the characteristics of a valley climate, yet the open nature of the valley and the varied contours of the town, together with the course and movement of the Severn through and around the town, prevent stagnation of the air, and the prevailing South-West wind has free course, keeping the air clear and fresh, and river fogs are neither common nor dense. The rainfall is moderate, the town lying within the rain shadow of the hills of Wales and the Border Country. The rainfall for Shrewsbury in 1906 was 20·63 inches, as given in the 'Tables of Meteorological Data,' published in the Quarterly returns of the Registrar General. The observer is Capt. W. E. Manser, R.E., and the height of the recording station is 212 feet. The rainfall in 1906 was 2·09 inches above that in 1905. September was the driest month, fall 0·61 inches on 5 days. October was the wettest, fall 4·05 inches on 24 days.

The old town of Shrewsbury stands on two hills, of generally moderate ascent, but steep in parts, and nearly surrounded by the river which here forms an horseshoe curve some two miles round with a width across the neck of some 400 yards. The enclosed part is for the most part densely built upon. Of the various suburbs across the river, Frankwell forms an old settlement on the North-West, with modern extensions, chiefly of villa residences, along the main roads radiating from it. Kingsland is a modern residential suburb to the South-West; Coleham, an old settlement to the South-East with Belle Vue, a modern extension adjoining; and Abbey Foregate, old near the river, and modern and residential further out, lies to the East. To the North-East, on the low lying ground outside the neck of the peninsula, is the considerable District of Castle Fields, built over for the most part some forty or fifty years ago, and forming an artisan residential quarter.

Shrewsbury is a market and residential town, an important railway centre, and the natural centre for trade of a large Agricultural district, a large number of main roads converging on the town. Industrial works are neither numerous nor extensive for a town of the size of Shrewsbury. There are large Maltings, three Breweries, a Tanyard, an Agricultural Implement Works, a Railway Carriage and Wagon Works, an Iron Foundry, Tobacco and Cigar Factory, Gas Works, and Electric-Light Works.

POPULATION.

The Population of the Borough at the 1891 Census was 26,967, and at the 1901 Census was 28,395, an increase of 1428 persons in ten years. The population at the middle of 1906 is estimated by the Registrar General as 29,288, this estimate being based on the assumption that the rate of increase has been steady and proportional since 1901. For the purpose of calculating the Birth and Death rates in this Report I have added 320 persons as the proportion of the Borough residents using the Atcham Union Workhouse and the County Asylum, both institutions being situate outside the Borough, and have deducted 60 persons as the proportion of residents of other districts using the Salop Infirmary, which is within the Borough. Thus corrected the net population for Birth and Death rates is 29,548. The natural increase of population, being the excess of Births over Deaths in the year, was 262.

The following table shows certain statistics of mortality during the year, compared with 1905, and also with the average for the Borough in preceding years, and with the rate for a number of towns among which Shrewsbury is included by the Registrar General in his Returns.

	1906.	1905.	Average of 10 years 1896-1905.	England & Wales, 1906, 142 Smaller Towns.
Births per 1000 of Population ...	23·3	23·8	25·8	26·5
Deaths per 1000 Population ...	14·7	15·3	17·1	14·4
Deaths of Infants under one year per 1000 born	113	108	136	138
Deaths from Seven Chief Epidemic Diseases per 1000 of Population	1·42	0·58	1·19	1·71

The following table gives the Vital Statistics for the year for the several parts of the Borough. Locality 1, comprises the old town within the river curve; Locality 2, is the Welsh Ward comprising the old settlement of Frankwell, with its modern extensions; Locality 3, is a wide area lying generally East, South-East, and South-West of the Town, and outside the river curve; Locality 4, comprises Castle Fields and two adjoining Wards to the North of the Town.

Locality.	Wards comprised.	Estimated Population 1906.	Per 1,000 persons living.			Infantile mortality per 1000 births.
			Birth Rate.	Death Rate.	Zymotic Death Rate.	
1	Quarry Stone Castle	5822	16·14	13·74	1·20	117
2	Welsh	3754	25·83	20·51	1·86	165
3	Abbey Belle Vue Kingsland and Coleham	10081	23·21	13·59	1·39	103
4	Coton Hill Ditherington Castle Fields	9891	26·68	14·05	1·41	102
Whole	Borough	29548	23·3	14·7	1·42	113

The population figures of Localities are corrected by deduction of a due proportion of the inmates of the Infirmary and Prison, and by addition of a due proportion of the inmates of the Atcham Workhouse and County Asylum, the deaths in these various Institutions being distributed among the Localities to which they belonged.

BIRTHS.

No. 689. Rate per 1000, 23·3.

The Birth rate is showing the tendency to decrease which is observed throughout the country. The rate for 1906 is 2·5 per 1000 below the average for the Borough, and is 0·5 below that for 1905, these two years having the lowest rates recorded. If the general fall in the birth rate leads to greater effort being made to save infant lives and to bring up young children under conditions more favourable to health and physical development the nation will not greatly lose by it.

DEATHS.

No. 433. Rate per 1000, 14·7.

The number of deaths registered in the Borough during 1906 was 427. From these are deducted 54 deaths occurring in the Salop Infirmary, of residents of other Districts. 52 deaths occurring in the Workhouse, and 8 occurring in the County Asylum, of Borough residents, are added, the net deaths therefore being 433.

The death rate, 14·7, is the lowest of which I have record. It is 2·4 per 1000 below the average of the past 10 years. This is very satisfactory, especially when the fact that the death rate for each of the preceding five years, 1901—05, has been lower than any previous year is taken into account.

INFANTILE MORTALITY.

	1906.	1905.	Average of ten years 1896—1905.
Borough of Shrewsbury, per 1000 born	113	108	136
England, 142 smaller Towns „ „	138	132	—
Shropshire „ „	—	94	110

The amount of infant mortality is measured by stating the number of children who have died under one year old in proportion to 1000 births during a given period. In the Borough the births for the year were 689, and 78 children died under twelve months old. The Infantile mortality rate was therefore equal to 113 per 1000 births.

This number is below the average for the previous ten years. The rate has for 1906 and 1905 been below the rate for the 142 smaller towns.

The causes of the 78 deaths were as follows :—

Whooping Cough	7	Convulsions	16
Diarrhœal diseases	11	Bronchitis	8
Premature Births	5	Pneumonia	7
Debility and wasting	11	Suffocation (overlying)	3
Tuberculous disease	2	Other causes	8
		Total	78

As usual, the causes which may in many cases be ascribed to errors of diet and management rank high. Such are the diarrhœa, wasting, convulsions, and over-lying, which together account for over 50 per cent. of the 78 deaths.

As the delegate of the Corporation, I attended the National Conference on Infantile Mortality in June last in London. I reported subsequently on the proceedings, to the Sanitary Committee, and the following is an abstract of the chief points of my report.

The attendance at the Conference was extremely good, and the papers and discussions of great interest and value, helping greatly to form and strengthen public opinion on the question, and to crystallise the ideas of Sanitary Authorities and others who may be called upon to assist in the prevention of the present waste of infant life.

The most important resolutions from the local point of view were Nos. 1, 4, 9, and 10.

(1) "That the Education Department be urged to add instruction in Elementary Hygiene, with reference to the dietary and rearing of infants, to their present scheme for systematically training girls in the senior classes in the practice and principles of personal hygiene and the elements of dietary."

(4) "That notification of all births be given within 48 hours to the Medical Officer of Health of the district in which they occur."

(9) "That the Dairies, Milkshops, and Cowsheds Order is defective, and that any amendment should extend the definition of disease as applied to animals, and should make the provision of regulations by local authorities compulsory. That the scope of the regulations should be extended to cover dirty milk, and should enable local authorities to prohibit the sale of any milk which fails to comply with the conditions of purity agreed upon."

(10) "That in the opinion of this Conference the appointment of qualified women specially trained in the hygiene of infancy is necessary as an adjunct to public health work.

Resolution No. 1 is that which, if carried out, appears to promise best for a permanent improvement. I drew attention to this subject in my last Annual Report. No. 9 is very important in its intention to lead to improvement in the cleanliness and freedom from disease of milk.

In my opinion the question of arranging for perodical veterinary inspection of all milch cows within the Borough might again be considered as a means of eliminating tubercle from milking cows.

Resolutions Nos. 4 and 10 go together. No. 4 is to enable Sanitary Authorities to cause, or assist in, the visiting, by health visitors or inspectors, of houses where there has been a recent birth, so as to advise in the feeding and general care of the infant. At present a birth need not be registered until six weeks after the child is born, a period which covers that which is most dangerous to the infant life. Given notification within 48 hours of birth, the appointment of qualified women trained in the care of infants becomes necessary, as stated in Resolution No. 10.

Bearing upon this subject I am glad to record the formation, towards the end of 1906, of a "Health Society" in the Borough. One of the main subjects dealt with is Infant Mortality, and the Society and the Borough have had the great advantage, in starting the work, of the temporary and gratuitous assistance of a qualified and fully trained lady who has had much experience of this work in another town. The work has been thoroughly well inaugurated, and the Society has now appointed a trained and qualified health visitor to carry it on. To assist the Society, the Sanitary Committee have decided to pay the usual fees to the Registrars for the supply to them of weekly returns of Births in the Borough. These returns are accessible to the Society and afford the ground upon which the visitor can work. The Sanitary Committee have also had printed a card of advice to mothers in the feeding and care of infants, for distribution by the Society on the Sanitary Committee's behalf.

The Sanitary Commitee feel the great importance and value of the work which the Society can do for the health of the Borough in connection with the saving of infant life, and also in connection with the prevention of Phthisis, to which I allude again in this Report. The Committee feel that this work necessitates the services of a qualified lady health visitor, and they therefore are about to recommend the Council to make a substantial grant to the funds of the Society, to enable the Society to maintain a paid health visitor in the Borough. I trust that the Council will accept this recommendation.

INFECTIOUS DISEASE. The following table shows for 1906 and 1905 the actual number of deaths occurring from the seven chief Epidemic Diseases, together with the death-rate for each Disease per 1,000 living in 1906, compared with the mean rates for the 142 "smaller towns."

	Deaths.		Death-rate per 1,000 living 1906.	
	1906	1905	Shrewsbury.	England & Wales 142 smaller towns
Small Pox	—	—	—	—
Measles	—	—	—	0.22
Scarlet Fever	—	—	—	0.09
Diphtheria	5	1	0.17	0.17
Whooping Cough ...	21	1	0.71	0.20
Fever Typhus	—	—	—	
Typhoid	2	1	0.07	0.09
Continued	—	—	—	
Diarrhœa	14	14	0.47	0.94
Total ...	42	17	1.42	1.71

The following table shows the number and nature of cases of certain Infectious Diseases which occurred in the Borough during the year, compared with the previous year, and the number of houses infected is shown.

	Small Pox. 1906.	Small Pox. 1905.	Scarlet Fever. 1906.	Scarlet Fever. 1905.	Diphtheria. 1906.	Diphtheria. 1905.	Enteric Fever. 1906.	Enteric Fever. 1905.	Erysipelas. 1906.	Erysipelas. 1905.
Number of houses infected ...	—	—	31	31	41	15	9	8	10	15
Number of persons attacked ...	—	—	33	39	47	15	10	8	10	16
Number of deaths	—	—	—	—	5	1	2	1	—	—

SCARLET FEVER. 33 cases were notified in 31 houses. There was no death. 20 of these cases were scattered as single outbreaks in various parts of the Borough, and at different times of the year. The only months in which there was any special prevalence were November and December. Ten cases were notified in November and fourteen in December. Of these 24 cases, thirteen had a traced connection with each other, ten of them being associated in my opinion with infected milk. The earliest notified cases in this outbreak were three children attending a small private day school. It seemed probable on investigation that there had been one or more slight unsuspected cases previously among the children of the school. Ten cases followed in ten separate houses, the attacks dating between November 28th and December 17th. In these the milk supply was from the same dairy. These cases probably did not represent five per cent. of the consumers of the milk and were spread over a much longer period than one would expect in a milk caused outbreak. The accumulation of evidence however left no doubt in the end but that the milk was in some way the cause. and though most careful and repeated investigation at the dairy failed to produce definite evidence of infection there, the opinion I formed was that a child from the dairy, who had attended the small school referred to above, had had scarlet fever in a very slight and practically unrecognisable form and had been the cause of infection of the milk from time to time. Every assistance was given me at the dairy, and after the children had been removed from the house, on my advice, and the whole house thoroughly disinfected no further case occurred. The cows were examined by a Veterinary Surgeon on behalf of the keeper of the Dairy, and found in good health and free from any eruption which might have caused suspicion. As a milk infection this outbreak was unusual. The small proportion of consumers of the milk attacked and the fact that the cases were scattered in as many separate houses, and spread over a period of seventeen days, were against the assumption. But the sequence of ten cases, having no other probable connection but that of a milk supply in common, led me in the end to a definite conclusion. The explanation I think most probable is that the child at the dairy referred to had scarlet fever in so slight form as to pass quite unsuspected.

This child having no direct connection with the milk business was not a source of constant, or considerable, infection. The infection of the milk was probably occasional and slight. The milk was delivered to the customers within two or three hours of milking and consumed probably early in the day. Hence the milk had probably not time to become infected in bulk, and only those consumers were infected who were served with infected portions.

This outbreak led to an exceptional demand for public Isolation Accommodation, and four cases were admitted to the Emergency Hospital, one being a patient from a boarding house attached to the Girls High School, a second from a private house, and two being girls in domestic service.

DIPHTHERIA. 47 cases occurred in 41 houses with 5 deaths. The disease was more prevalent than in any year since 1898. There was no epidemic prevalence, but the diphtheria infection appeared to be somewhat wide spread in the Borough. Scattered cases occurred in each month except January, February and July. The greatest number of cases in any month were :—9 in June, 8 in October, and 8 in November. Cases occurred in all parts of the Borough, but fewer in the Welsh Ward than elsewhere. From April to August 11 cases occurred in the Castle Fields Ward, most of these being children attending All Saint's School. I visited the School on several occasions and in the case of one absentee from School with sore throat, where no doctor had been called in, I took a swab from the throat and it was reported on examination to show diphtheria bacilli. For the guidance of School Teachers I drew up a circular descriptive of the disease and giving directions as to precautions to be taken in School. This was distributed to the Teachers in All Saint's School with good effect. There was no other definite evidence of association with Schools, though three cases in October attended Wyle Cop School, and three others, from September to November, attended Cherry Orchard Infant School.

It appears probable that a Bill providing for the medical inspection of Elementary School children will be passed by Parliament this Session. The provision by Education Authorities for regular examination of school children will be a great safeguard against the spread of infection through school attendance, and will be specially valuable in the case of diphtheria.

ENTERIC FEVER. Ten cases were notified in nine houses with two deaths. Careful investigation was made into each case but the source of infection was generally quite obscure. In one case the patient appeared to have drunk river water. The relative insignificance of this disease in recent years in the Borough is the happiest feature of its Sanitary history. The following table shows the marked decline which has taken place.

Enteric Fever.	5 years. 1891—95.	5 years. 1896—1900.	5 years. 1901—05.	1906.
Average number of Cases notified per annum	54	39	10	10

WHOOPING COUGH. The number of deaths registered from this disease shows it to have been very prevalent during part of the year.

ERYSIPELAS. Ten non-fatal cases were notified.

PUERPERAL FEVER. One non-fatal case was notified.

INFLUENZA was more fatal than in 1905. 19 deaths were ascribed to it, 11 of these being persons of 65 years or more.

PHTHISIS.

	1906.	1905.	Ten years average. 1895—1904
Borough of Shrewsbury (death rate per 10,000) ...	10.83	11.23	14.46
Shropshire ... ,, ,, ,, ...	—	9·11	10·09

The death rate from Phthisis is seen to be considerably greater in the Borough than in the County taken as a whole. To some extent a higher rate is to be expected in a large Town with its aggregation and greater density of population.

The following figures give a comparison of the Borough with the Country generally, the figures for the latter being taken from the Register General's Annual Report for 1905.

Phthisis mortality at all ages.	Crude Rates, Average, 1900—04.
England and Wales	12.53 per 10,000 living.
Urban Counties	13.57 ,, ,, ,,
Rural Counties	11.28 ,, ,, ,,
Shrewsbury	14.91 ,, ,, ,,

These figures show that there is much room for improvement in the Borough. It is satisfactory to note the improvement shown in the figures for 1905 and 1906 in the Borough, an improvement which there is no doubt may be maintained and increased by public preventive measures.

I have in previous reports recommended the adoption in the Borough of a system of voluntary notification by medical men of cases of phthisis, and of preventive measures to be taken thereon. Greatly increased interest in the subject of phthisis has recently been aroused in the County, and the Council, in taking preventive measures may count fully on public support.

In October of last year the medical men of the County, as represented by the Shropshire and Mid-Wales Branch of the British Medical Association, passed a resolution "that voluntary notification of phthisis is desirable, "and that wherever adopted it should be followed up by efficient preventive measures."

Recently a very valuable and interesting report on phthisis in the County of Salop has been presented to the County Council by Dr. Wheatley the County M. O. H.. I believe that the County Council has kindly arranged for the issue of this report in sufficient numbers to provide copies for all members of Local Sanitary Authorities, and the report deals so fully with the nature of the disease, its importance, and the measures that may be taken for its prevention, that I would suggest that a copy be obtained for each member of the Town Council.

In March of this year a general meeting was held in Shrewsbury at which it was resolved that steps be taken to form a County Association for the Prevention of Consumption.

The main point for consideration is that phthisis is an infectious disease and may be prevented. Its importance in causing loss of life is shown by the fact that more deaths are due to phthisis each year than to all the common infectious diseases put together. Thus in the Borough, for the ten years 1895—1904, the average annual death rate from the seven chief epidemic diseases was 11·9 persons per 10,000 living, which from phthisis the rate was 14·5.

Notification of cases is the first step, in order to gain knowledge of the existence of cases. *Compulsory* notification, as applied to other and acute infectious diseases, is for several reasons not applicable to phthisis. *Voluntary* notification can be arranged for and will be found very useful.

In advising the Sanitary Committee recently to recommend the Council to adopt voluntary notification of phthisis, I recommended preventive procedure upon the following lines—

1. Routine disinfection at the public expense of a house vacated by a consumptive patient, either on account of his death or removal.

2. (a) Visits to a house in which a notified case exists, and where the assistance of the Corporation is not stated to be unnecessary by the medical man, for the purpose of giving general advice and leaving handbills, to be provided by the Corporation, of advice and information for the patient and for the household.

(b) Disinfection and limewashing at the public cost of a house or rooms occupied by a patient, following upon notification where enquiry shows such public disinfection to be desirable for the purpose of removing infection already existing.

(c) Provision at the public cost of disinfectants, spittoon mugs, pocket spittoon flasks, and paper handkerchiefs, for the use of the patient in the safe disposal of his infected sputum, in suitable cases.

For the above purposes it will be necessary to provide for printing handbills, enquiry forms etc. Also for washing down walls and limewashing under the Sanitary Inspector's supervision. For the visits of advice and supervision, the permanent services of a trained and qualified lady health visitor, are in my opinion essential. Her services should be provided either by the Corporation alone, or by arrangement with the local Health Society now being formed in the Borough.

Since presenting the above report to the Sanitary Committee, the Health Society, as I have stated, has appointed a qualified Health Visitor and is willing to assist in this work of phthisis prevention. I would therefore again recommend the Council to assist the Society by making a substantial grant on the understanding that the visiting of cases of phthisis be regularly undertaken in the Borough.

SUMMER DIARRHŒA. Death-rate from Summer Diarrhœa per 10,000 of population, calculated as an annual rate from the deaths from Diarrhœa registered as occurring during the third or Summer quarter of the year :—

	1906.
England and Wales	26·0
76 Great Towns	36·3
142 Smaller Towns	28·3
England and Wales, less the 218 Towns	13·8
Shrewsbury	1·4

The extent to which this disease affects a locality affords one of the best indications of the existence or otherwise of a filth-laden atmosphere. In Shrewsbury this rate is consistently low, and as a general rule is below the rate for Rural England and Wales.

HOSPITAL ISOLATION. The Borough has for some years maintained a small Emergency Hospital of two Wards with six beds in all, for cases of Small Pox or Cholera arising. A caretaker and porter live on the premises. The Hospital was very useful in the limited outbreaks of Smallpox in 1902 and 1903, but it is in no way fitted to serve the purpose of a public Hospital for adequate isolation of the more common infectious diseases, such as Scarlet Fever and Diphtheria. At times when there is no apparent likelihood of smallpox arising, the use of the Hospital is allowed to private patients able and willing to pay the heavy cost of their own and their nurses entire maintainance for several weeks

My view has always been that the Council should provide and equip an Isolation Hospital in another and more suitable situation, keeping it always open for private patients on the most reasonable terms possible, and for isolation, at the public cost or at a minimum fee, of patients of the poorer classes, who are often unable to isolate a case with due regard to the public safety in their own homes.

In my opinion the Council should secure a site, fence it, lay water and drainage, and build a substantial central block to serve as administrative building, containing quarters for a matron, nurses, and servants, with kitchen and scullery. A Porter's lodge, laundry, ambulance and shed, disinfecting shed and mortuary should be provided. The cost of all this could be met by loan. The minimum accommodation for patients should be twenty beds in two blocks of ten beds each, so that two diseases could be treated at the same time, each block to contain two wards with four beds in each, for the two sexes, and two private wards of one bed each. If it were not thought desirable to go to the expense at first of erecting substantial brick buildings for the patients' blocks, structures of wood and iron could be purchased at much less cost. If these were the best of their kind procurable they would be quite suitable, comfortable and durable, and I should suggest that if possible their cost be also included in the loan.

The Borough has for some years been comparatively very free from infectious outbreaks. This good fortune cannot be expected to be permanent. In any and every extensive outbreak there are many cases where the want of home isolation adds to the public danger, and where isolation entirely or for the most part should be afforded at the public cost. And as was seen in the recent Scarlet Fever outbreak, isolation accommodation under present arrangements is inadequate, incomplete and far too costly to the patient.

With a new Hospital on the lines indicated, the staff in non epidemic times would be kept down to the matron, and perhaps one servant and the porter. The matron should be a trained nurse, and required to take charge of one or two simple uncomplicated cases, not needing constant or special nursing care. The nursing staff could be added to as required, as also the staff of servants. In this way the cost per case would be kept as low as possible. With ample ground space, temporary buildings could be quickly added if an epidemic should necessitate more accommodation.

Such a Hospital appears to me to be the minimum possible for proper equipment of the Borough. Without such provision the Council takes a very undesirable responsibility in the event of a serious epidemic arising. Even if the Borough should for years maintain a fortunate freedom from dangerous epidemic conditions, the expenditure need in no way be looked on as lost· In any crusade against Phthisis it will become desirable, and even necessary, for public provision to be made for the isolation of advanced cases, those cases which are most deadly in infection, and unfortunately beyond cure. When the Hospital was not otherwise in use, such patients might with great advantage be taken in, and the Hospital would be found to be of permanent use.

PUBLIC DISINFECTION. The Council has not so far accepted the principle of the necessity for a central disinfecting station. I have already expressed my views fully as to the propriety of a town of the size of Shrewsbury having such a Station.

The disinfection of infected rooms in notified cases is effected by the Sanitary Inspector who has an apparatus provided for spraying with formaldehyde solution, and lamps for fumigating with formalin vapour.

Disinfectants are provided from the Sanitary Office for use in most cases, for disinfecting excreta and infected soiled linen, and for scouring rooms. I have recommended the extension of routine disinfection to cases of Phthisis, and the Sanitary Inspector has in several cases sprayed out rooms after the death or removal of a case.

WATER SUPPLY. The existing system of dual supply is too well known to need close description. Unfiltered river water is laid on to the houses, and spring water of the highest organic purity is supplied to public hydrants in the streets, so that all drinking water has to be fetched by hand and stored in cans or steans in the houses.

In writing my Report a year ago, I hoped, and with the Council had reason to hope, that a settlement of the water question was within reach. The Council had unanimously adopted an upland scheme, known as the Pulverbatch Upland Scheme, and this scheme, when submitted to the ratepayers together with an alternative Filtered River Water Scheme, having received a large majority of the votes given, the Council proceeded to promote a Bill in Parliament for carrying it into effect. The Bill had then to be submitted to the ratepayers for their formal acceptance, and the result was to negative the scheme decisively.

The present system is a deadlock, and one can only assume that the town is satisfied with the existing dangerous and dirty system of supply, and prefers to remain in a position which is second rate, and damaging to its reputation, rather than incur the cost of any efficient scheme.

I can only state to the Council that the existing system is no less to be condemned because the ratepayers may be assumed to be satisfied with it, and the Council have unfortunately the responsibility upon them still of finding an efficient remedy for the radical defects and dangers of the existing state of things.

It might be said that there is a plentiful supply of pure water available for drinking and cooking, easily procurable by all, and that the river water if cleaned of its mud deposits is good enough for personal and domestic washing, baths, and flushing w.c's and drains. In the case of an individual household in the country, such a dual supply often serves efficiently, but in dealing with a community it can only be said that any system which entails the laying on to the houses of a water which is not potable, while the supply of drinking water has to be fetched in from the street is indefensible on account of the risks, against which the householder cannot protect himself. The cleaning of the river water would certainly lead to more risk of its being freely drunk, and in my opinion it would be better not to clean it, unless by perfection of filtration and daily bacteriological examination it can be pronounced to be safely potable.

In leaving this subject I would quote some very appropriate paragraphs from a paper by an American public health official, Dr. Hibbert W. Hill, of Minnesota. "Usually a supply intended for any purpose other than for drinking, such as purely industrial use or fire protection, should be potable also, or else should be so arranged as to be inaccessible to the public,.........or, finally, should be so unpalatable that it cannot and will not be used for drinking." "Repeated and bitter experience has shown that no amount of mere warning, or other such seeming safeguard, is sufficient to prevent the use of a hygienically objectionable water for drinking purposes if it be both available and palatable." "A basic principle of water supply is that the public must not be trusted to protect itself against infected water delivered to it by the community. A public water supply for whatever exclusive purpose it may be designed, if it be also available and palatable, must be hygienically pure at all times, incapable of even transient infection, if the public health is to be properly safeguarded."

The Council's difficult duty, as it appears to me, is to proceed afresh for a single supply of pure water, under whatever powers and from whatever source may be found to be open to them.

CONDUIT WATER. This is a very pure, bright, and palatable spring water, derived from gravel beds rising in a protected enclosure at a spot known as the Conduit Head, about a mile and a half south-west of the town, and has been in possession of the Corporation for more than 300 years. Considerable works have been effected during the year at the Conduit Head with a view to increasing the supply and giving a better pressure throughout the town. A cast iron tank on steel stanchions, holding 30,000 gallons, has been erected, and a new three-throw pump fixed to supply this tank, which gives a head of 60 feet above the springs. The water is delivered to stand pipes in the town and of these there are now 181, the eight pumps in the higher parts of the town being abolished, as also the two underground supply tanks which formerly stored the water on its way from the springs to the town. The pressure of water is greatly improved throughout and now is good in the higher parts of the town where formerly it was indifferent. A new well 4 feet in diameter was sunk in the springs enclosure and the new pumps are connected with this.

The year was one also of anxiety to the Water Committee on account of a proprietor of land adjacent to the Conduit Head sinking a shaft there. As soon as water was reached powerful pumps were put down and continuous pumping began and was kept up for a considerable time. It being felt that it was at least possible that the rate of pumping might seriously deplete the springs, the Water Committee sought for other possible sources of supply of pure drinking water. They were most fortunate in meeting with the most complete and practical assistance from the Mayor of Shrewsbury, Mr. Councillor R. E. Jones, who placed the deep well in the large maltings at Ditherington, in the Borough, at the disposal of the Committee. The well was investigated and the water analysed chemically and bacteriologically. It proved to be of very high purity and quite satisfactory. The necessary work of coupling up with the Conduit Supply Mains was made, all drainage in the neighbourhood of the well was re-laid or made good, and this well supplied the town with drinking water entirely for nearly three months. This water is obtained from a boring into the Bunter measures of the new red sandstone and the yield is apparently very large. The character of the water, chemically, and in hardness, is very similar to that of the conduit springs.

SEWERAGE AND DRAINAGE. The town proper and its extensions are sewered throughout on one main system. Many of the main sewers are very old culverts, and there is evidence that a good many of the more modern piped sewers are not watertight. I have nothing to add to former recommendations in favour of a system of gradual replacement of sewers known to be of unsound construction or description. The working of the new Sewerage Scheme and the practically continuous pumping have had an undoubtedly good effect in keeping the sewers more free from deposits.

There was no important work done during the year in laying new sewers or relaying old ones.

The ventilation of sewers has been improved in the past three years by the erection of some 30 tall shaft ventilators in various parts. The man hole covers in the streets are generally closed down. In many of the older sewers there is no ventilation other than by house-drain ventilators. I have always advised the trapping off of house drains from the sewers, and ventilation of sewers by special shafts.

FLUSHING OF SEWERS. This is attended to regularly and periodically by the Borough Surveyor. Some 200 manholes are fitted with flap valves for flushing from the hydrants by means of hose, and there are some four automatic flushing tanks at the ends of sections of the main sewers.

DISPOSAL OF SEWAGE. The sewage, now intercepted from the river, is pumped to the Corporation Sewage Farm, at Monkmoor, and is dealt with by precipitation in subsiding tanks, the effluent being irrigated over the Farm. The effect which the removal of the sewage from the river has had in cleansing the stream and its bed is most marked, and the river is now taking its proper place as one of the most attractive features of the town.

The Sanitary Committee has now established a laboratory for analysis of sewage effluents, and samples are taken periodically and analysed. In this way the effect of various precipitants on the character of the effluent can be watched. Lime, and 'Alumino-ferric,' are the precipitants which have been used.

As regards the CONDITION OF HOUSE DRAINAGE I need only repeat that there is much old drainage work which is below a modern standard of soundness, and which requires radical improvement as opportunity occurs for remodelling it. It is common to find, when old drains are exposed for some purpose, a very bad state as regards structure and soundness. Much good work, however, has followed on the new Sewerage Scheme, and every year a considerable number of old drains are relaid, under inspection, and new work is generally well designed and carried out. On the whole good progress is certainly being made in this important matter.

Regulations for the construction of House Drainage were adopted in 1892 under the powers of Section 21 of the Public Health Act, 1875. They are thorough in scope, and prescribe the trapping-off of house drains from the sewers. During the year 27 plans for redrainage of house property were approved by the Sanitary Committee.

New drains are subjected to water test by the Council's Inspectors before being covered in.

EXCREMENT DISPOSAL. The water carriage system is practically universal in the Borough. In the cottage and smaller class of property the w.c.'s are outside and detached from the houses. Under the Building Byelaws in force in the Borough plans for all new w.c.'s have to be approved by the Sanitary Committee; 16 such plans were passed during the years. In approving these plans the drainage regulations are applied to any section of the house drains serving to connect the w c. with the public sewer. In this way an improvement in the house drain is often effected.

PUBLIC SCAVENGING. House refuse is collected from all parts of the town by the Corporation carts weekly, and in some parts during the summer twice a week. Accumulations of refuse are, under this system, not found in the vicinity of houses. The refuse is tipped on low-lying ground within the Borough. Greater attention is now paid to the disposal of refuse at the 'Tips' and complaint of nuisance arising is rarely received. The important point is to cover with soil or with dry ashes any refuse liable to decompose, and so to prevent offensive nuisance and the breeding of flies.

The Improvement Committee has under consideration the whole question of the system of collection of house refuse.

HOUSING. House accommodation is adequate in amount. The building of new houses quite keeps pace with the slow increase of population, and the conditions which obtain in many large towns, of families occupying single rooms or several families occupying one house, are not met with here. The Borough compares favourably with the aggregate of Shropshire Urban Districts as regards the proportion of very small houses, of four rooms or less, and in the proportion also of such small houses shown by the Census return to be overcrowded. At the same time there is cause for continued investigation to discover and deal with cases of remediable overcrowding, and the Sanitary Inspector has paid special attention to this matter in recent years.

As I have stated before, the housing problem in Shrewsbury lies in its inheritance, from the 17th and 18th centuries chiefly, of a very large number of old houses badly spaced on area, badly designed. and, though strongly built, in a condition now of natural decay. There has been no extensive modern business development such as in a manufacturing town might have led to a clearance of old property. There remains therefore a large number of very old houses which from defects of situation or structure, exhibit feature of dampness, or insufficient light and ventilation, or dilapidation due to age, and do not afford wholesome conditions of habitation.

The Sanitary Committee are giving close attention to the question of the fitness and condition of old house property of the poorer class and have several properties and individual houses under consideration. One difficulty which has to be faced is the provision of better accommodation for those who now occupy the unsatisfactory old property at low rentals, from 2/- to 3/6 per week, and whose means do not allow of a much higher rent. It appears that to enable a more stringent standard to be applied generally to much of the old property, it is most desirable and even necessary for the Corporation to build houses for the working classes. I would most strongly recommend the Council to consider closely the powers given them by the various Housing Acts, and to make a beginning by building some thirty houses to be let at a rental of 3/6 to 4/- per week, as this should be possible without laying a serious charge upon the rates. To build houses which require a rental of over 5/- per week as return for the expenditure would not in my opinion be of any assistance to the class most needing more healthy housing conditions.

PERMISSIVE POWERS. The Public Health Acts (Amendment) Act 1890, has now been adopted. The Infectious Disease (Prevention) Act 1890 is not adopted.

Bylaws have been made with respect to—Nuisances, New Streets and Buildings, Slaughter Houses, Common Lodging Houses.

DAIRIES, COWSHEDS, & MILKSHOPS. Regulations with respect to Dairies, Cowsheds and Milkshops are in force. The number of persons registered under the Dairies, Cowsheds, and Milkshops, Order 1885, is 127. Of these 36 are Cowkeepers and Milksellers residing in the Borough: 59 are retailers of milk, and 32 are Cowkeepers residing outfide the Borough but retailing milk within it. The premises in the Borough are visited and inspected, but more frequent inspection is desirable. The Cowsheds might with advantage be visited six times a year and the premises of retailers of milk be inspected once a quarter. Very little milk appears to be stored by retailers, the custom being to receive the milk as it comes in from the Country Districts, and to distribute it at once on the round. 37 samples of milk were taken for analysis last year and 34 were returned as genuine.

COMMON LODGING HOUSES. There are 5 registered in the Borough. Three of these are in Frankwell, one in Hill's Lane, and one in Longden Coleham. The registered accommodation is for 112 males and 21 females. These houses are efficiently looked after by the Police acting as Inspectors under the Borough Bylaws. The Chief Constable reports that a total of 25,385 persons were registered by the Police as sleeping in them during the year.

During the year the Model Bylaws as to Common Lodging Houses were adopted, in place of the old set.

SLAUGHTER HOUSES. There are 23 on the Register, 15 of these being congregated together in Roushill. They are periodically inspected and are kept for the most part in accordance with the Bylaws, and in fair condition having regard to their ancient character and structure. I have often referred to the desirability of providing a Public Slaughterhouse, and the Sanitary Committee has the question under consideration.

OFFENSIVE TRADES. There are very few in the town. There is one for Tripe boiling and Gut scraping in Roushill, and three places for Tallow melting in different parts of the town. These latter places are old-established businesses, established before it was necessary to obtain the Council's consent.

NEW BUILDINGS. Under the Byelaws adopted in 1877, plans for all new buildings are required to be submitted and approved. During the year plans were submitted and approved for 28 new dwelling-houses, additions to dwelling-houses 23, and new buildings and alterations to buildings other than dwelling-houses 9.

FACTORY AND WORKSHOP ACT, 1901. I append a formal Report upon the administration of the above Act. There are no special Workshop industries in the Borough, the workshops registered being those common to a residential and agricultural centre. There are 229 worshops on the registers, including 48 retail bakehouses. The bakehouses are inspected regularly, and their limewashing and sanitary condition kept in review.

Special attention has been given during the year to the requirements of the Act with regard to outworkers. Lists are now received twice a year in accordance with section 107. To secure the dne return of these lists by Employers it has been necessary for the Sanitary Inspector to make personal application. The lists supplied by the Employers are filed in the Sanitary Inspector's office and sent round to the employers for revision a short time before a new list is due. In this way the return of lists is kept up with the minimum of trouble and friction.

SALE OF FOOD AND DRUGS ACT. The following is an account of action taken during the year by the Inspector appointed to take samples under the Act:—

	No.	Result.	
		Genuine	Adulterated.
New milk	37	34	3
Butter	2	2	—
Ground Rice	2	2	—
Flour	2	2	—
Coffee	4	4	—
Sardines	1	1	—
Salmon	3	3	—
Corned Beef	3	3	—
Mustard	2	2	—
Crushed Linseed	1	1	—
Total	57	54	3

Proceedings taken with respect to the milk found adulterated resulted in conviction in each case, the fines amounting to £5 including costs, £5 and costs 18/6, and £3 including costs.

The samples of ground rice and flour were taken with a view to discover presence of Barytes.

SANITARY INSPECTION. Mr. E. Owen was appointed Sanitary Inspector in 1893. His salary is £120 per annum, and his present appointment is for five years. He is provided with Office, Stationery, and Uniform. Mr. W. Wood was appointed Assistant Sanitary Inspector in 1905. Having no previous experience of the work his salary was fixed at 10/- per week while receiving practical training, to be increased to £52 per annum, so soon as he obtains the Certificate of the Sanitary Institute. His appointment has enabled the routine work of Inspection to be maintained.

A satisfactory feature of the following tabular report is the amount of redrainage work done under the Inspector's supervision. The careful attention which the Inspector pays to this matter results in the execution of much sound work, of much value to the health of the Borough, and his attention has I feel sure materially assisted towards the raised standard of drainage work which I am glad to regognise.

The following is an Account furnished by the Sanitary Inspector, of Sanitary Work for the Year ending 31st December, 1906, in the Borough of Shrewsbury Sanitary District.

Number of Houses which have been inspected during the above period, either in connection with outbreaks of infectious disease, or in consequence of complaints, or in the course of a systematic Sanitary Survey	1673
Number of legal notices sent	4
Number of informal notices sent	779
Number of such notices complied with	758
Number of letters written	137

Particulars of Sanitary Matters referred to in the above Notices:—

(*a*)	Houses to be disinfected after infectious Disease	72
(*b*)	Deficient or objectionable water supply	44
(*c*)	New drains to be constructed or old drains to be amended	237
(*d*)	New closets to be provided or old ones to be amended in construction	103
(*e*)	Houses damp or dirty, or admitting rain, or weather, or otherwise in a bad sanitary condition	65
(*f*)	Offensive accumulations of all kinds	219
(*g*)	Animals so kept as to be a nuisance	18
(*h*)	Houses overcrowded	21

Dairies, Cowsheds, and Milkshops:

(*a*)	Number of Cowkeepers and Milksellers on register	127
(*b*)	Number of inspections	78
(*c*)	Number of notices, verbal or written	25
(*d*)	Number of notices complied with	19

Proceedings before Magistrates	Nil
Houses inspected in house to house inspection	465
Houses disinfected by Sanitary Inspector	63